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NOTES ON GEOGRAPHIC DISTRIBUTION

Diptera, Psychodidae, Phlebotominae Rondani,1840: Range extension and new records from lowland Bolivia

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ABSTRACT: During a field trip to the town of El Carmen in de Department of Santa Cruz we captured 108 specimens of Phlebotominae (Diptera: Psychodidae). Among the specimens examined, we found five species of sand fly comprising four genera. Four species (*Lutzomyia cruzi*, *Lutzomyia forattinii*, *Evandromyia corumbaensis*, *Expapillata cerradincola*) are new records which increased the number of species known to occur in Bolivia from 117 to 121.

Leishmaniasis is a potentially disfiguring and sometimes fatal disease caused by a protozoan parasite of the genus *Leishmania*, an endemic zooanthroponotic disease that affects large numbers of people in the Americas. Of several endemic countries, Brazil and Bolivia have the highest numbers of cases for both cutaneous and mucocutaneous leishmaniasis although visceral leishmaniasis (VL) is comparatively rare in Bolivia (Garcia *et al*. 2009). The parasites are transmitted by the bites of several species of Phlebotomine sand flies (Diptera: Psychodidae: Phlebotominae) and to date, approximately 850 species have been estimated to exist in different regions of the world. The Neotropical region accounts for more than 60 % of the world's species. According to the computer-aided identification of Phlebotomine sand flies of the Americas (CIPA 1999) database, 82 Phlebotominae species occur in Bolivia and since the last update, Thirty five more species have been recorded for the country (Le Pont *et al*. 2004; Galati 2003) raising to 117 the sand fly species found in Bolivia, distributed between two tribes: Hertigiini, Abonnenc and Leger, 1976 and Phlebotomini Rondani, 1840 (Galati 2003).

Bolivia is located in midwestern South America, bordering on Brazil to the north and east, Paraguay and Argentina to the south, and Chile and Peru to the west. With an area of 1,100,000 km^2 Bolivia can be divided into three major regions: the altiplano or high plateau, the yungas, a series of forested valleys on the eastern slopes of the Andes which descend into the third region, the llanos, and the lowlands of eastern Bolivia.

The tropical lowland plain region (llanos) covers more than two-thirds of Bolivian national territory. This area comprises the Departments of Beni, Pando, and Santa Cruz. During the wet season (November/December to March), much of this area is flooded or swampy. Further south, and separated from the Amazonian lowlands by the Chiquitos highlands (*ca*. 1,000 m.a.s.l.), lay the dry, semitropical plains of the Chaco. These plains form part of the La Plata River basin and constitute a northward extension of the Argentinian pampas.

Compared with the regions of the altiplano and the yungas, the lowland plains have received little attention in terms of studies of sand fly fauna. We undertook collections of sand fly species on two different occasions. (March 2004 and May 2008) to document the sand fly species of this region.

Collections of sand flies were carried out in El Carmen (18°49'64" S, 58°36'95" W), Department of Santa Cruz. Captures were performed using Center for Disease Control (CDC) light traps in a chicken coop and a pigsty. The traps were set at dusk (18:00 h) to the following morning (07:00 h). Sand fly specimens were preserved in glass vials containing 70 % ethanol, taken to the laboratory, mounted and classified in accordance with Galati (2003). Specimens were deposited in the Phlebotomine Sand Fly Collection of the Instituto René Rachou-Fiocruz in Belo Horizonte, MG. The new records of species are set out in order below, according to genera and species and followed by additional comments on each species.

Among the 108 specimens examined, we found five species of sand fly comprising four genera. Four species are new records which increased the number of species known to occur in Bolivia from 117 to 121.

***Lutzomyia cruzi* (Mangabeira, 1938)**. Specimens examined: 67 males and 16 females captured in the chicken coop and pigsty. This is the first record of *L. cruzi* in Bolivia. Geographical distribution: BRAZIL (Goiás, Mato Grosso and Mato Grosso do Sul), BOLIVIA.

***Lutzomyia forattinii* Galati, Rego, Nunes and Teruya, 1985**. Specimens examined: two males and five females captured in the chicken coop. This is the first record of *L. forattinii* in Bolivia. Geographical distribution: BRAZIL (Mato Grosso do Sul), BOLIVIA.

***Evandromyia corumbaensis* (Galati, Nunes, Oshiro**

and Rego, 1989). Specimens examined: eight females collected in the chicken coop and pigsty. This is the first record of *Ev.corumbaensis* in Bolivia. Geographical distribution: BRAZIL (Mato Grosso do Sul), BOLIVIA.

***Psathyromyia shannoni* (Dyar, 1929)**. Specimens examined: five males collected in the chicken coop. Geographical distribution: BRAZIL (Roraima, Amapá, Amazonas, Pará, Acre, Rondônia, Tocantins, Maranhão, Piauí, Ceará, Paraíba, Pernambuco, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul, Mato Grosso, Mato Grosso do Sul, Goiás), BOLIVIA, ARGENTINA, PARAGUAY, PERU, ECUADOR, TRINIDAD AND TOBAGO, FRENCH GUYANA, SURINAM, VENEZUELA, COLOMBIA, PANAMA, COSTA RICA, NICARAGUA, HONDURAS, GUATEMALA, BELIZE, MEXICO, UNITED STATES.

***Expapillata cerradincola* (Galati, Nunes, Oshiro and Dorval, 1995)**. Specimens examined: Two males and three females captured in the chicken coop. This is the first record of *Ex. cerradincola* in Bolivia. Geographical distribution: BRAZIL (Minas Gerais, Mato Grosso do Sul), BOLIVIA.

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